

**METHOD AND APPARATUS FOR FREQUENCY-DOMAIN
TRACKING OF RESIDUAL FREQUENCY AND CHANNEL
ESTIMATION OFFSETS**

ABSTRACT OF THE DISCLOSURE

5 Various methods and apparatus for frequency-domain estimation of carrier
frequency offsets are provided in which the carrier frequency offset estimate is robust against
non-white (frequency-dependent) noise. A carrier-specific weighting factor is associated
with each carrier of a multi-carrier signal. Using the carrier-specific weighting factors, a
carrier frequency offset estimate is computed from received signals and estimated channel
10 transfer functions associated with each of the carriers. Because greater weights are given to
carriers whose frequencies include lower noise and/or carriers transmitting a known sequence
of symbols, the estimate of the carrier frequency offset is improved. The carrier frequency
offset estimate may then be applied in a feedback loop to phase-compensate a subsequently
received signal.
15

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